

4. To replace the brushes, remove the screw securing each brush to the brush plate and remove each brush assembly.

5. Reinstall each brush and tighten the mounting screws securely.

6. When reinstalling the brush into its receptacle in the brush plate, make sure the tension spring is properly located within the notch in the end of each brush.

7. Inspect the condition of the commutator. The mica in a good commutator is below the surface of the copper bars. On a worn commutator the mica and copper bars may be worn to the same level (**Figure 73**). If necessary, have the commutator serviced by a dealer or electrical repair shop.

8. Inspect the commutator copper bars for discoloration. If a pair of bars are discolored, grounded armature coils are indicated.

9. Use an ohmmeter and check for continuity between the commutator bars (**Figure 74**); there should be continuity (low resistance) between pairs of bars.

10. Also check for continuity between the commutator bars and the shaft (**Figure 75**); there should be no continuity (infinite resistance). If the unit fails either of these tests the armature is faulty and must be replaced.

11. Use an ohmmeter and check for continuity between the starter cable terminal and the starter case; there should be no continuity. Also check continuity between the starter cable terminal and each brush wire terminal; there should be continuity. If the unit fails either of these tests the starter motor assembly must be replaced.

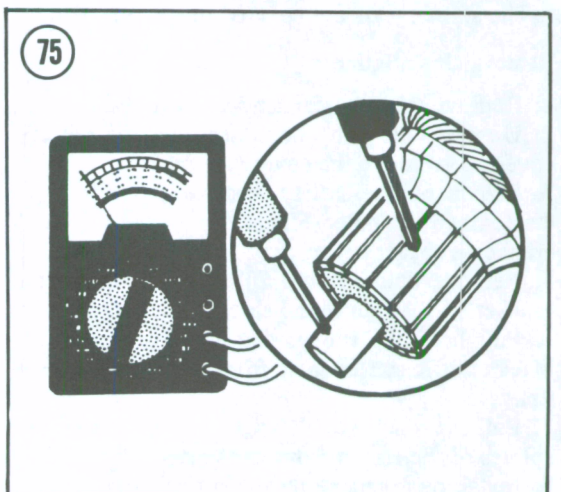
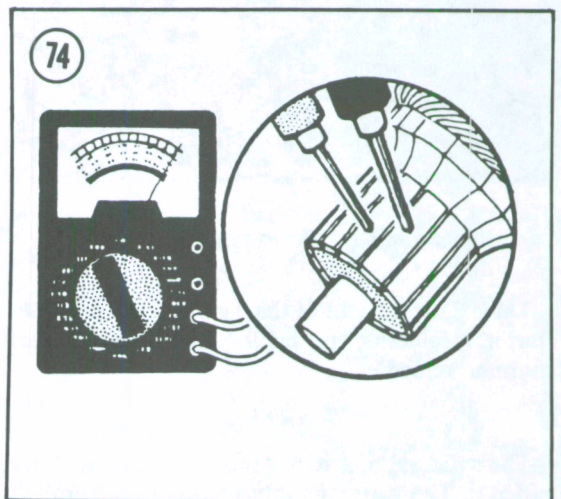
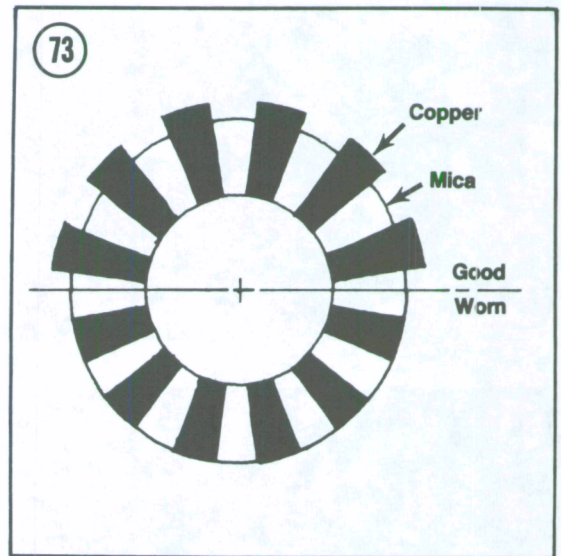
12. Assemble the case as follows:

- a. Align the pin on the brush plate with the notch in the starter case and push the brush plate all the way down until it seats completely in the case.
- b. Be sure to install all shims on the shaft next to the commutator.
- c. Align the pin on the brush plate with the notch in the end cap and install the end cap.
- d. Install the case bolts and tighten securely.

## STARTER SOLENOID

### Removal/Installation

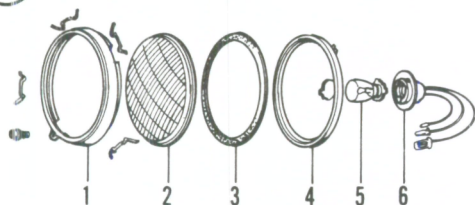
1. Remove the seat/rear fender assembly.
2. Unscrew the wing bolts securing the battery cover and remove the cover (**Figure 36**).
3. Disconnect the battery positive and negative leads.
4. Remove the screws securing the solenoid cover and remove the cover (**Figure 33**).



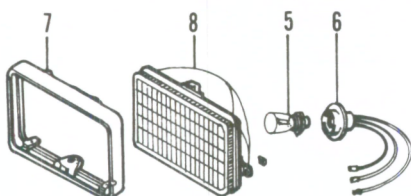


76

ATC90, 1979-1980 ATC110

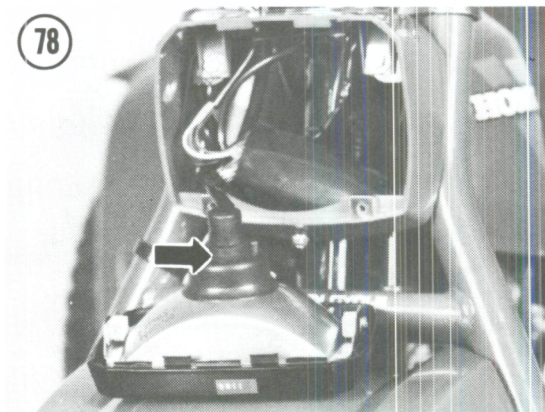


1981-ON ATC110, ATC125M

**HEADLIGHT ASSEMBLY**

1. Trim bezel
2. Lens
3. Gasket
4. Inner rim
5. Headlight bulb
6. Bulb socket
7. Trim bezel
8. Headlight lens unit

78



5. Slide off the rubber protective boot.
6. Remove the nuts and washers and disconnect both electrical wires from the top terminals of the solenoid.
7. Remove the solenoid from the rubber mount on the frame.
8. Replace by reversing these removal steps. Make sure all electrical connections are tight.

**Testing**

1. Disconnect the electrical connectors going to the starter solenoid.
2. Connect a 12 volt battery to the electrical connector containing 2 wires (one green/red and one yellow/red).
3. Check for continuity using an ohmmeter set at  $R \times 1$ . Measure between the connector bolts on top of the solenoid. There should be continuity (low resistance).
4. If there is no continuity, the solenoid is faulty and must be replaced.

**LIGHTING SYSTEM  
(MODELS SO EQUIPPED)**

The lighting system consists of a headlight and a taillight. **Table 4** lists replacement bulbs for these components.

Always use the correct wattage bulb as indicated in this section. A larger wattage bulb will give a dim light and a smaller wattage bulb will burn out prematurely.

**Headlight Replacement**

Refer to **Figure 76** for this procedure.

1. Remove the screw(s) (**Figure 77**) securing the headlight assembly to the case.
2. Pull out on the bottom of the headlight assembly and disengage it from the locating tab on top of the headlight housing.
3. Pull back the rubber boot (**Figure 78**).

77



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